CALIFORNIA
HIGH-SPEED RAIL
AUTHORITY

BRIEFING: JULY 2011 BOARD MEETING AGENDA ITEM #7

TO: **Chairman Umberg and Committee Members**

FROM: **Roelof van Ark: CEO / Hans Van Winkle: Program Director PMT**

DATE: **July 14, 2011**

RE: **Initial Operating Segment (Overview of the Concepts)**

Background

The California High Speed Rail Authority has secured a total of $3.3 Billion dollars of Federal funds for the construction of an Initial Construction Section [ICS]. The Federal funding was directed to the Central Valley and was matched by Proposition 1A funds, bringing the total funding available for this initial construction to $5.9 Billion.

The selection of the ICS was the first step in a continuous process which should logically lead to the continued construction of the alignment, until the whole network is interconnected.

Discussion

The typical implementation of High Speed Rail Systems throughout the world has taken place through a series of logical sequential steps. The proposed phased development of the California HSR system is consistent with those models, and takes into account the experiences in France, Germany, the UK, Spain, Japan, etc.

The construction of the Initial Construction Section (ICS) is the first, and only the first, but crucial step for a true high speed rail system in California. The ICS will provide critical civil infrastructure designed and constructed for 220 mph operating speeds and will be the backbone of the ultimate California High Speed Rail System. As required by the federal grants the ICS will also have the possibility to offer "independent utility". That is, it will be available to provide enhanced intercity high-speed passenger rail service if for any reason the ultimate full Real High-Speed Rail system is not built out fully .

A high speed rail system is complex and involves multiple elements that must be fully integrated and tested under various operating scenarios before being placed into revenue service. This can only be done on a dedicated track that is capable of replicating the actual operating scenarios at the actual operating speeds. It should be remembered that all the core technology for Real high-speed rail systems (rolling stock, signaling, electrification, track, turn-outs, switch-machines etc.) are not available in the USA, and would have to be transferred to the USA based on "Technology transfer agreements" so that manufacturing in the USA will take place to meet the "Buy-America"

requirements. All these sub-systems, and the system as a whole, need to be tested at full capacity and at design speeds, before safe operation can be started. A test facility is required to make this possible. Currently there is no such test track in the U.S. The minimum required length for an effective test track for 220 mph operating speeds is 120 miles which allows trains to reach the maximum operating speed, remain at this speed for a sustained (albeit short) period and then decelerate and come to a stop before the end of the test track. This length is based on investigations done together with the suppliers and operators of high-speed rail equipment, allowing for sufficient sustained testing at 220 mph. The Merced to Bakersfield section meets the requirements for such a test track. The total length is approximately 170 miles with passenger stations at the end of the Test Track (Merced and Bakersfield) and with 2 intermediate stations (Fresno and Kings/Tulare). This allows for effective and comprehensive testing of the various operating scenarios. Accordingly, the logical progression is to extend the current ICS to Merced and to Bakersfield and to install the Core System elements (electrification, signaling, communications, etc.) to form the test track.

The test track will be used to verify the integration of the various high speed components, to train the operators and the maintainers, etc. to ensure that the completed system is safe, reliable with properly trained and fully competent staff to enter revenue service.

While the test track operations are on-going, the construction of the extension from the ICS/Test track will continue in parallel to prepare for the Initial Operating Segments (IOS) which will be used to carry passengers in revenue service as soon as the systems are tested and the extended tracks are completed. The California population centers are shown in Figure 1; clearly, the goal is to connect the Bay Area to the L.A. Basin as quickly as possible. This will involve an intermediate stage: extension of the ICS/test track to connect the Central Valley first to either the Bay Area or to the L.A. Basin. The assessment of both of the alternatives will be described in the Business Plan to be finalized by January 2012 (draft by October 14, 2011).

Recommendation

The start of true high speed rail will occur in the Central Valley between Merced and Bakersfield that is capable of 220 mph operations, and will additionally serve as a test track and will form the backbone of the California High Speed Rail system. This is referred to as the Initial Construction Section (ICS). The test track will be used to demonstrate that the elements of the high speed rail system are fully integrated, are safe and reliable, and that the operating/maintenance staff is properly trained and proficient before the system enters revenue service. It will also have independent utility as an enhancement to high-speed intercity passenger rail service.

The ICS/Test Track will be extended to form an Initial Operating Section (IOS) that we will operate Real high-speed trains in revenue service up to 220 MPH. The goal is to extend the ICS/Test track to connect with the Bay Area or to connect with the San Fernando Valley (Los Angeles Basin) as a first phase, and then to connect the Bay Area with the L.A. Basin to form Bay-to-Basin connectivity. The recommendation on the sequencing of the extension from the ICS/Test Track to the IOS will be further analyzed and described in the 2012 Business Plan. Final sequencing of either the southern extension or the north-western extension will be submitted to the board at a later date for decision, and will be subject to funding availability, as well as other selection criteria.

Attachments:

- ✓ **Powerpoint Initial Operating Section (IOS)**